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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,628	09/30/2003	Richard C. Chu	POU903130US1	6070
46369	7590	06/28/2005	EXAMINER	
HESLIN ROTHENBERG FARLEY & MESITI P.C.			PAPE, ZACHARY	
5 COLUMBIA CIRCLE			ART UNIT	
ALBANY, NY 12203			PAPER NUMBER	
			2835	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/675,628

Applicant(s)

CHU ET AL.

Examiner

Zachary M. Pape

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9302003.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 10, and 17 are objected to because of the following informalities: With respect to claim 17, In line 2, the word "plan" is incorrect. It appears that it should be changed to "planer".

With respect to claim 10, in line 2, the phrase, "a plurality of electronics drawer" is incorrect, it appears it should be changed to read, "a plurality of electronic drawers".

Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. **Therefore, the first and second planar heat transfer surfaces (Claim 1), main planar surface(s) (Claim4), and the first and second cold plates (Claim 4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The examiner recognizes that elements 335, and 340 are the cold plates as detailed in the specification, however the first and second heat transfer surfaces as well as the main planar surfaces must be annotated to describe the exact portions as taught in claims 4 and 6.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-7, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 4-5, it is unclear how the first liquid cooling subsystem includes a first cold plate and a first planar heat transfer surface comprising a main planar surface of the first cold plate. The examiner recognizes and attributes the heat transfer surface to be element 335, however there is no indication that there is a

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separate cold plate. Similarly, claim 4 further recites that the second cooling subsystems includes a second cold plate and a second planar heat transfer surface comprising a main planar surface of the second cold plate. Claim 5 is rejected for being dependent on a claim rejected under 35 U.S.C. 112.

With respect to claims 6 and 7, the applicant further states that the cold plate of claim 4 further reciprocates perpendicularly to the first planar heat transfer surface thereof. Because there is no indication that either the first or second system contains a separate cold plate, it is unclear how the cold plate can move perpendicular to the first planar heat transfer surface. If in fact the applicant means that the cold plate is comprised of the first planar heat transfer surface, it would still be unclear as to how it could move perpendicular to the surface itself.

Similarly, with respect to claim 10, it is unclear how the second planar heat transfer surface comprises a main planar surface of a system cold plate, and further how the system cold plate reciprocates in a direction perpendicular to the second planar heat transfer surface with docking and undocking of the electronics drawer.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Faneuf et al. (US 6,836,407). With respect to claims 1 and 16, Faneuf et al. (Figs 2, 3, 6, 15, and 16) teaches a thermal dissipation assembly comprising: a first liquid cooling subsystem (Comprising 64, 66, 68, 70) disposed substantially within an electronics drawer (24) and positioned to extract heat from a heat generating component (58) within the electronics drawer, said first liquid cooling subsystem including a first planar heat transfer surface (68); a second liquid cooling subsystem (Comprising 272, 274, 228) disposed substantially external to the electronics drawer (As illustrated in Fig 16), said second liquid cooling subsystem including a second planar heat transfer surface (248, Fig 15); and a biasing mechanism (101 Fig 3) for mechanically forcing the first planar heat transfer surface (68) and the second planar heat transfer surface (248) coplanar when the electronics drawer is in a docked position in an electronics rack to facilitate the transfer of heat from the first liquid cooling subsystem to the second liquid cooling subsystem (As illustrated in Fig 3, the biasing member (101) is used to hold and align the first heat transfer surface (68) such that when the drawer is closed (As illustrated in Fig 7, for example) the first and second heat transfer surfaces mate in a coplanar fashion).

With respect to claim 3, Faneuf et al. further teaches that the biasing mechanism comprises a spring biasing mechanism (As taught in Column 4, Lines 44-49, the biasing mechanism (101) has some amount of vertical movement, as if to act in a resilient manner, and is therefore a spring).

With respect to claim 4, in so far as can be understood by the examiner, Faneuf et al. further teaches that the first liquid cooling subsystem includes a first cold plate (86, 88), the first planar heat transfer surface comprising of a main planar surface of the first cold plate, and the second liquid cooling subsystem includes a second cold plate (248), the second planar heat transfer surface comprising a main planar surface of the second cold plate.

With respect to claims 5, 13, and 18, in so far as can be understood by the examiner, Faneuf et al. further teaches that the heat generating component comprises an electronics module (58) disposed within the electronics drawer (As illustrated in Fig 3), and the first liquid cooling subsystem includes a module cold plate (70) coupled to the electronics module and a pump for moving coolant between the module cold plate and the first cold plate to facilitate extraction of heat from the electronics module and dissipation of the heat to the second cold plate of the second liquid cooling subsystem when the electronics drawer is docked and the electronics module is operational (Column 5, Lines 10-37).

With respect to claim 6, in so far as can be understood by the examiner, Faneuf et al. further teaches that the biasing mechanism (101) comprises a spring biasing mechanism disposed between a pressure plate (56) affixed to the electronics drawer and the first cold plate (68; As illustrated in Fig 3), wherein the first cold plate (86, 88) reciprocates perpendicular to the first planar heat transfer surface thereof with docking and undocking of the electronics drawer in the electronics rack (Per Fig 3, as the drawer

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is fully closed, 68 will mate with 36 and thus cause the first planar heat transfer surface to reciprocate perpendicular to the first cold plate (86, 88)).

With respect to claim 7, in so far as can be understood by the examiner, Faneuf et al. further teaches that the electronics drawer (24) comprises one electronics drawer or a plurality of electronics drawers in the electronics rack and wherein the second cold plate (228) of the second liquid cooling subsystem is mechanically fixed relative to the electronics rack (As illustrated in Fig 16).

With respect to claims 8, 19, and 14, Faneuf et al. further teaches that the first liquid cooling subsystem further comprises an evaporator heat transfer block (70) positioned to extract heat from the heat generating component (58), a condenser heat transfer block (68) including said first planar heat transfer surface, and at least one heat pipe (64, 66) interconnecting the evaporator heat transfer block and the condenser heat transfer block for transferring heat from the heat generating component to the first planar heat transfer surface of the condenser heat transfer block (As illustrated in Fig 3)

With respect to claims 9 and 15, Faneuf et al. further teaches that the condenser heat transfer block (68) is mechanically fixed relative to the electronics drawer (As illustrated in fig 3), and the biasing mechanism (101) applies a biasing force to the second planar heat transfer surface (248) when the electronics drawer is in the docked position in the electronics rack (Column 4, Lines 44-49; the biasing member (101) will cause a force to be applied to the first heat transfer surface (68) which will in turn will cause a force to be applied to the second heat transfer surface since the two are in contact with each other when the drawer is closed).

With respect to claim 10, in as far as can be understood by the examiner, Faneuf et al. further teaches that the electronics drawer comprises one electronics drawer of a plurality of electronics drawer in the electronics rack, and wherein the second planar heat transfer surface (228/248) comprises a main planar surface of a system cold plate (As illustrated in Fig 14), the system cold plate reciprocating in a direction perpendicular to the second planar heat transfer surface with docking and undocking of the electronics drawer (As illustrated in Fig 16, the second heat transfer surface comprising the cold plate and the main planar surface would have some movement perpendicular to the plate (for example toward the rear of the electronics drawer system) when a drawer such as 24 is inserted and removed from the system).

With respect to claim 11, Faneuf et al. further teaches a cooled multi-drawer electronics rack comprising; a plurality of electronics drawers (24), at least one electronic drawer of the plurality of electronics drawers having a thermal dissipation assembly comprising: a first liquid cooling subsystem (Comprising 70, 64, 66, and 68) disposed substantially within the at least one electronics drawer and positioned to extract heat from a heat generating component (58) within the electronics drawer, the first liquid cooling subsystem including a first planar heat transfer surface (68); a second liquid cooling subsystem (Comprising 272, 274, 228) disposed substantially external to the at least one electronics drawer (As illustrated in Fig 16), the second liquid cooling subsystem including a second planar heat transfer surface (228); and a biasing mechanism (101) for mechanically forcing the first planar heat transfer surface and the second planar heat transfer surface coplanar when the at least one electronics drawer

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is in a docked position in the multi- drawer electronics rack to facilitate the transfer of heat from the first liquid cooling subsystem to the second liquid cooling subsystem (Column 4, Lines 44-49).

With respect to claims 2 and 12, Faneuf et al. further teaches that the biasing mechanism (101) applies a perpendicular biasing force to at least one of the first planar heat transfer surface and the second planar heat transfer surface when the electronics drawer is docked (Column 4, Lines 44-49).

With respect to claim 17, Faneuf et al. further teaches that the biasing comprises biasing at least one of the first planar heat transfer surface and the second planar heat transfer surface with a biasing force disposed perpendicular thereto (Column 4, Lines 44-49, Faneuf et al. teaches that the biasing member (101) biases the first heat transfer surface toward the rear of the cabinet).

With respect to claim 20, Faneuf et al. further teaches that the condenser heat transfer block (68) is mechanically fixed relative to the electronics drawer (As illustrated in fig 3), and the biasing mechanism (101) comprises providing a biasing force which is perpendicular to the second planar heat transfer surface (248) when the electronics drawer is in the docked position in the electronics rack (Column 4, Lines 44-49; the biasing member (101) will cause a perpendicular force to be applied to the first heat transfer surface (68) which will in turn will cause a force to be applied to the second heat transfer surface since the two are in contact with each other when the drawer is closed).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6,657,121 and 6,796,372 (Both US) details the use of further drawer thermal management systems

US 2002/0114139 details the use of a biasing spring member with a cold plate

US 20040150949 details the use of components within a drawer

US 20050041391 details the use of air cooling within a drawer


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-2201. The examiner can normally be reached on Mon. - Thur. & every other Fri. (8:00am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached at 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ZMP


ANATOLY VORTMAN
PRIMARY EXAMINER